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ABSTRACT

From 22 June through 30 July 1976, a prototype instruction/evaluation model for a reading-enrichment program was developed and tested. The model included a randomly selected sample of subjects drawn from 280 children, aged eight through seventeen, participating in a sports program at Memphis State University. The 60 experimental-group students were placed in four subgroups based upon instructional emphasis (comprehension vs. vocabulary) and grouping strategy (homogeneous vs. heterogeneous). After four weeks of instruction, subjects were evaluated using the Gates-MacGinitie Reading Tests, the Nowicki-Strickland Locus of Control Scale for children, and a locally developed satisfaction scale. While the instructional period was too short to result in any significant differences between groups, interesting trends were observed favoring vocabulary study and homogeneous grouping. It was concluded that the posttest-only, control-group design was the appropriate choice for evaluation purposes and that the program was worthy of further development. Tables of findings are included. (Author/JM)

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SUMMER SPORTS PROJECT:* A PILOT STUDY FOR READING IMPROVEMENT

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September, 1976

*Funded by the National Collegiate Athletic Association, Memphis State University, and the State of Tennessee, Summer, 1976.

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ABSTRACT

Summer Sports Project: A Pilot Study for Reading Improvement

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During the period from June 22 through July 30, 1976, a prototype instructional/evaluation model for a reading enrichment program was developed and tested. The model included a randomly selected sample of subjects drawn from an over-all population of 280 youngsters participating in the National Youth Sports Program at Memphis State University, Memphis, Tennessee. The experimental group consisted of 60 students who were re-grouped into four sub-groups based upon instructional emphasis (comprehension vs vocabulary) and grouping strategy (homogeneous vs heterogeneous). After four weeks of instruction the subjects were evaluated using the Gates-MacGinitic Reading Tests (Vocabulary and Comprehension), the Nowicki-Strickland Locus of Control Scale, and a locally developed satisfaction scale. The data were analyzed in a one-way ANOVA to compare the experimental groups with a control group.

While the instructional period was too short to result in any significant differences between groups, some interesting trends were observed favoring vocabulary study and homogeneous grouping. It was concluded that the Posttest Only Control Group Design was the appropriate choice for evaluation purposes, and further, that the program was worthy of further development, and suggestions were presented for further development and evaluation.

Introduction

This report describes a pilot program conducted as a component of the Summer Youth Sports Project held at Memphis State University. Subjects included nearly 300 youngsters whose ages ranged from eight to seventeen. In addition to a schedule of activity-oriented sports experiences, several sessions of reading improvement were provided a random sample of the 300 participants. While it was realized long term achievement gains were unlikely, it was felt that a pilot effort would prove helpful in planning long term programs to be organized on a year-round basis.

Value of Enrichment

Enrichment programs have characteristically included those curricular components considered to be prerequiste for higher skills (e.g. readiness activities for young children) or largely supplemental in nature. The language enrichment program while being auxiliary to the overall Youth Sports Program, is in itself representative of an innovative and "needs" oriented effort to combine the long cried theme "body and mind." By capitalizing upon learner interest in sports, language development is facilitated in a natural manner. Sports has too often been viewed as typically an enrichment experience. For our purposes, reading improvement has been included as an important auxilary component. Such a focus allows for increased cognitive development in reading simultaneously with athletic and positive attitudinal experiences.

Grouping for Instruction

The problem of designing learning environments for students with

widely varying interests, needs, and abilities is a very real problem for schools. Groups are generally agreed to be an important educational tool, yet very little research exists to determine the most effective grouping procedures for various situations. The most frequently used grouping methods are based upon some measure of ability. These procedures are known to educators as homogeneous/heterogeneous grouping, ability/mixed ability grouping, and tracking/mainstreaming. Atkinson[1] outlined the theory behind these strategies in terms of their effects upon the personality dynamics of the group members. In particular, the interaction effects of Need for Achievement and Anxiety Avoidance were explored. An experiment involving sixth graders was designed and carried out; the results tended to favor ability grouping for its effect upon personality variables, but little effect was observed on achievement.

Frye and his associates[2,3] divides the problem of grouping variables into intrinsic -- orientation of the group, ability of individual members, and prior patterns of interaction -- and extrinsic factors -- group size, feedback and reinforcement contingencies, and type of grouping used. One of the objectives of this study was to determine the efficacy of grouping by any method in an "enrichment" situation.

Design of the Study

Selection of the Sample

A random sample containing forty (40) male and twenty (20) female subjects was identified from a total population of 280 participating youngsters. This sample was then divided into four groups: each group having fifteen (15) students -- 10 boys and 5 girls. These experimental groups were organized on the basis of grouping strategy employed and instructional emphasis.

On the last day of the program, an additional thirty (30) subjects -- 20 boys and 10 girls -- were randomly selected to act as a control group.

The only departure from strict randomization was that taken to insure a ratio of two boys for every girl. This was done for two reasons: first, to insure that no group would have only one or two of the same sex as participants; second, to reflect the over-all trend of a 2 to 1 ratio.

Procedures

Youngsters participating in the experimental groups experienced eight (8) instructional sessions of thirty (30) minutes each on a twice a week basis, Monday through Thursday. The experimental groups were organized on the following basis:

E_1 was grouped heterogeneously and received primarily vocabulary instruction.

E_2 was grouped heterogeneously and received primarily comprehension instruction.

E_3 was grouped homogeneously and received primarily vocabulary instrution.

E_4 was grouped homogeneously and received primarily comprehension instruction.

Both vocabulary groups received identical treatments, as did the two comprehension groups. All groups were taught by the same instructor.

The instrument used as the basis for grouping was the New Developmental Reading Tests: Intermediate Level, Form B[4] by Bond, Balow, and Hoyt. Only the Basic Reading Vocabulary and Reading for Information subtests were used.

At the conclusion of the program all participants were evaluated as to level of reading achievement, a generalized measure of Locus of control for children, and general satisfaction with the total program. The Gates-MacGinitic Reading Tests,[5] the Nowicki-Strickland Locus of Control Scale for Children,[6] and a locally developed satisfaction scale were the instruments used.

Treatment of Data

A posttest only control design was employed.

Control Group	R	T_0 --	M
Experimental Group	R	T_1 --	M
	R	T_2 --	M
	R	T_3 --	M
	R	T_4 --	M

This design avoids possible confusion introduced by reactive pretests. Comparison of the five groups' measurements permits defensible generalizations relative to the value of a given treatment. Randomization of sample selection should have adequately lessened the problem of initial group similarities.[7] Significant differences between groups were tested by applying analysis of variance techniques.

The Program

Subjects in the experimental groups received instruction in the areas of reading comprehension and vocabulary. Meaning focused upon

literal and inferential questioning strategies. Word building experience primarily dealt with associative and structural type study practice.[8] A list of the commerically available materials used, or adapted for the program are contained in Appendix C. In addition to the materials listed in Appendix C, was the leisure reading library of the Memphis State University, College of Education Reading Center.

Instructional procedures included the use of short interval, high interest reading material presented in group gaming situations. Alternate use of peer tutoring groups served to reinforce skill development lessons. The purpose of each lesson, in addition to skills reinforcement, was to provide involvement opportunities in which youngsters could successfully compete in meaningful reading/study situations.

Results

The purpose of this study was to develop a prototype instructional/evaluational model for the delivery of reading enrichment materials. In this section we present the results of the statistical evaluation procedures. The results are grouped into three areas: 1) randomization procedures, 2) attitude surveys, and 3) skill instruction.

Randomization and Grouping

Before one of the enrichment periods, all students were lined up into groups divided by age and sex (one line of 11 year old boys, one line of 11 year old girls, etc.). Students were instructed to "count off and remember your number." As soon as this was accomplished, a table of random numbers was consulted and assignment to four experimental groups was made. The experimental groups were then informed of the nature of the reading enrichment program. On the last day of the program, a control group was selected in a similar fashion. Table I presents a comparison of the control and experimental groups.

Insert Table I

about here

Experimental groups #1 and #2 were designated the RED TEAMS, while groups #3 and #4 were designated the BLUE TEAMS. Each experimental group was further divided into three subgroups -- or teams -- on the basis of performance on the vocabulary and literal comprehension subtests of the New Developmental Reading Tests. The RED teams were heterogeneously

grouped (mixed ability grouping), group #1 received primarily vocabulary enrichment, group #2 received primarily comprehension enrichment. The BLUE teams were homogeneously grouped (ability grouping), group #3 received primarily vocabulary enrichment, group #4 received primarily comprehension enrichment. Table II presents a comparison of the twelve subgroups.

Insert Table II

about here

Attitude Scales

On the final day of the reading enrichment program the following battery of tests were administered: 1) a short form of the Nowicki-Strickland Locus of Control Scale for Children, 2) a locally produced Satisfaction Scale, and 3) the vocabulary and comprehension subtests of the Gates-MacGinitic Reading Tests. This section will report on the results of the Locus of Control and Satisfaction Scale.

The Nowicki-Strickland Scale contains forty (40) items. Of this number, twenty-three (23) items were selected for analysis. These items constituted the items selected for the abbreviated scales for Grades 1-6 and 7-12 by Nowicki and Strickland (1973, p. 150-151). Table III presents the items that constituted the form used for this study.

Insert Table III

about here

Analysis of the data was based on giving internal responses positive scores. The data, therefore, is arranged so that a high score

indicates a high "internal" locus of control orientation. One-way ANOVA of this data reveals no statistically significant trends. Table IV, however, does show the control group's scores to be generally lower (i.e., more internal) than the experimental groups'. Graph I presents a visual representation of this data.

Insert Table IV

about here

Insert Graph I

about here

A Satisfaction Scale was developed by the staff for the purpose of giving the students a chance to express their satisfaction with the summer program. Table V presents the five items that constituted this scale.

Insert Table V

about here

By comparing the overall results it was possible to show some differences between the treatment groups (grouping strategy) and the control group. Further, an item analysis was performed on this data. Table VI presents the results of a one-way ANOVA. Table VII presents the results of a chi-square item analysis. Graph II presents a visual representation of the data in Table VI. Graph II is so arranged that a tall bar indicates less satisfaction.

Insert Table VI
about here

Insert Graph II
about here

Insert Table VII
about here

Skills Instruction

One-way ANOVA reveals no statistically significant trends in either vocabulary or comprehension scores. Table VIII, however, does indicate a slight trend favoring the vocabulary study groups on the vocabulary subtest. No similar trend can be discerned in the comprehension subtest data, which is presented in Table IX.

Insert Table VIII
about here

Insert Table IX
about here

Full Pearson correlation data was collected for all perameters. Table X presents this data.

Insert Table X

about here

Discussion

Summary and Discussion

While the project did not represent an impressive demonstration of reading achievement, other useful information was obtained. It should be noted that positive trends in vocabulary growth were found for the experimental subjects. This tends to support the general notions that reading comprehension is more than knowing the meanings of individual words, and that vocabulary growth is easier to accomplish than comprehension. Given the general goal of "enrichment" -- to expand the potential for future growth -- vocabulary enrichment certainly seems a likely area for fruitful development.

The Locus of Control data indicated a preference favoring the experimental groups. These children felt as though they had greater control over their lives than did the children who participated in the program without any skills instruction. This should be of more than passing interest to educators. Children who feel that there is little they can personally do to effect changes in their lives, are not motivated to attempt to learn difficult tasks. External Locus of Control means more than just the occasional "It's not what you know, but who you know that counts" feeling that we have all had. It means a self-fulfilling prophecy of low expectations; low levels of effort; low levels of achievement and even lower expectations. On the other hand, students who have high expectations are more willing to expend the effort necessary to achieve.

We believe, and the results tend to agree, that it does little good to merely tell a child that he is a capable and worthwhile person. Children, particularly school age children, are sophisticated enough to realize that skills count. Direct work on skills is the most efficient method of

telling a child that we expect him to succeed, and that he will succeed.

Interestingly, a technique enjoying current favor in education, mixed ability grouping, showed strongly negative results. Students who were in groups where there were others of approximately equal ability indicated approximately the same degree of satisfaction with the program as did the control group. Students who were in groups of widely varying ability, were not as satisfied. When asked if they thought the program was of benefit to them, the ability grouped students responded most frequently with a "yes" answer. (See Table VII and Graph II.)

Recommendations

In evaluating this program for areas of improvement, we find two topics that merit further study. First, the possibility of supplying "basic skills" as an enrichment supplement to a sports program, is an idea that has merit. In informally evaluating our students -- regardless of group -- we found them to be motivated and attentive. We would like to take full credit for this, however, we know that the setting of a university campus and a sports program were primarily responsible. Knowing this, it should be possible to take advantage of this in the future, for the benefit of the students.

Second, the whole area of group dynamics is a relatively untapped area for instructional research. For example, areas such as, the relationship between motivational variables and the learning of complex tasks; the interaction of group orientation and the abilities of the members of the group with personality/motivational variables; and the relationship among anxiety, need for achievement, risk taking, and grouping strategy are in need of exploration. Further, the results of such research are likely to benefit all students and not just the population of the Youth Sports Project.

The NCAA and the NAACP are in a unique position to assist in the area of instructional research and development. We would recommend these organizations (possibly in cooperation with the National Institute of Education or similar organizations) request proposals for enrichment projects from those universities participating in the National Youth Sports Program. These projects should emphasize instructional applicability and benefit for students involved.

APPENDIX A

TABLES

TABLE I

COMPARISON OF CONTROL AND
EXPERIMENTAL GROUPS AFTER RANDOMIZATION

	GROUPS				
	CONTROL	E_1	E_2	E_3	E_4
MEAN AGE (years;months)	11;8	11;7	11;5	12;1	11;6
TOTAL BOYS	20	10	10	10	10
TOTAL GIRLS	10	5	5	5	5

TABLE II

COMPARISON OF EXPERIMENTAL GROUPS AFTER REGROUPING

Group	Age Mean	N Boys	N Girls	Raw Scores Range	Raw Scores Mean	Raw Scores SD
Vocabulary Study						
E_1	11;7	10	5	0 - 29	16.80	7.82
Redskins		4	0		18.60	
Red Eagles		3	3		18.40	
Red Sox		3	2		16.40	
E_3	12;1	10	5	7 - 34	19.22	9.39
Blue Diamonds		4	1		29.75	
City Blues		3	2		21.20	
Blue Cardinals		3	2		8.80	
Comprehension Study						
E_2	11;5	10	5	1 - 15	9.08	4.30
Redmons		3	2		9.00	
Red Barrons		4	1		9.00	
Red Hots		3	2		9.25	
E_4	11;6	10	5	0 - 20	9.67	6.59
Memphis Blues		2	3		17.00	
Blue Bears		3	2		10.00	
Blue Allstars		5	0		2.00	

TABLE III

ITEMS USED FROM THE NORWICKI-STRICKLAND
LOCUS OF CONTROL SCALE

1. Do you believe that most problems will solve themselves if you just don't fool with them?
2. Are you often blamed for things that just aren't your fault?
3. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
4. Do you feel that most of the time parents listen to what their children have to say?
5. Do you believe that wishing can make good things happen?
6. When you get punished does it usually seem it's for no good reason at all?
7. Most of the time do you find it hard to change a friend's mind?
8. Do you feel that it's nearly impossible to change your parent's mind about anything?
9. Do you feel that when you do something wrong there's little you can do to make it right?
10. Do you believe that most kids are just born good at sports?
11. Are most of the other kids your age stronger than you are?
12. Do you feel that one of the best ways to handle most problems is just not to think about them?
13. Do you feel that when a kid your age dicides to hit you, there's little you can do to stop him or her?
14. Have you felt that when people were mean to you it was usually for no reason at all?

TABLE III--(Continued)

15.	Most of the time, do you feel that you can change what might happen tomorrow by what you do today?
16.	Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?
17.	Most of the time do you find it useless to try to get your own way at home?
18.	Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?
19.	Do you usually feel that you have little to say about what you get to eat at home?
20.	Do you feel that when someone doesn't like you there's little you can do about it?
21.	Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?
22.	Are you the kind of person who believes that planning ahead makes things turn out better?
23.	Most of the time, do you feel that you have little to say about what your family decides to do?

TABLE IV

GROUP ANALYSIS OF
LOCUS OF CONTROL RESULTS

Group	Mean	SD	SE	Range
Control Group	10.83	3.31	.60	7 - 17
Heterogeneously Grouped				
E_1 (vocabulary)	12.20	2.54	.66	8 - 17
E_2 (comprehension)	10.73	2.52	.65	7 - 15
Homogeneously Grouped				
E_3 (vocabulary)	11.00	2.39	.62	7 - 15
E_4 (comprehension)	11.67	3.09	.80	7 - 19

* significance level = .540

TABLE V

SATISFACTION SCALE ITEMS

1.	Do you feel this program was of benifit to you?
2.	Would you come if this program were to be offered on Saturdays during the school year?
3.	Would you come if this program were to be offered again next summer?
4.	Did you enjoy this summer's program?
5.	Would you come if there were no swimming?

TABLE VI

GROUP ANALYSIS OF
SATISFACTION SCALE RESULTS

Group	Mean	SD	SE	Range
Control Group	3.73	1.08	.20	1 - 5
Heterogeneously Grouped				
E_1 (vocabulary)	4.27	1.10	.28	1 - 5
E_2 (comprehension)	4.27	.46	.19	4 - 5
Homogeneously Grouped				
E_3 (vocabulary)	3.87	1.06	.27	2 - 5
E_4 (comprehension)	4.40	.74	.19	3 - 5

* significance level = .125

TABLE VII

PERCENTAGE OF STUDENTS ANSWERING "YES" TO INDIVIDUAL ITEMS OF SATISFACTION SCALE

Group	Question 1	2	3	4	5
Control Group	76.67	76.67	83.33	86.67	50.00
Heterogeneously Grouped					
E_1 (vocabulary)	73.33	86.67	93.33	93.33	80.00
E_2 (comprehension)	80.00	100.00	100.00	100.00	46.67
Homogeneously Grouped					
E_3 (vocabulary)	80.00	86.67	93.33	93.33	33.33
E_4 (comprehension)	86.67	60.00	100.00	100.00	93.33

Chi-square significance levels:

Question #1 = .920
Question #2 = .065
Question #3 = .208
Question #4 = .369
Question #5 = .003

TABLE VIII

COMPARISON OF MEAN VOCABULARY
RAW SCORES BY GROUPS

Group	Mean	SD	SE	Range
Control	19.13	7.44	1.36	1 - 33
Vocabulary Study				
E_1 (heterogeneous)	20.93	8.10	2.09	10 - 34
E_3 (homogeneous)	20.53	4.72	1.22	11 - 29
Comprehension Study				
E_2 (heterogeneous)	19.53	6.69	1.73	6 - 32
E_4 (homogeneous)	20.33	8.03	2.07	2 - 31

* significance level = .929

TABLE IX

COMPARISON OF MEAN COMPREHENSION
RAW SCORES BY GROUPS

Group	Mean	SD	SE	Range
Control	20.17	9.41	1.79	5 - 41
Comprehension Study				
E_2 (heterogeneous)	17.20	7.01	1.81	10 - 32
E_4 (homogeneous)	19.47	11.32	2.92	4 - 40
Vocabulary Study				
E_1 (heterogeneous)	19.87	9.68	2.50	9 - 41
E_3 (homogeneous)	19.87	6.83	1.76	10 - 36

* significance level = .882

TABLE X

PEARSON CORRELATION MATRIX

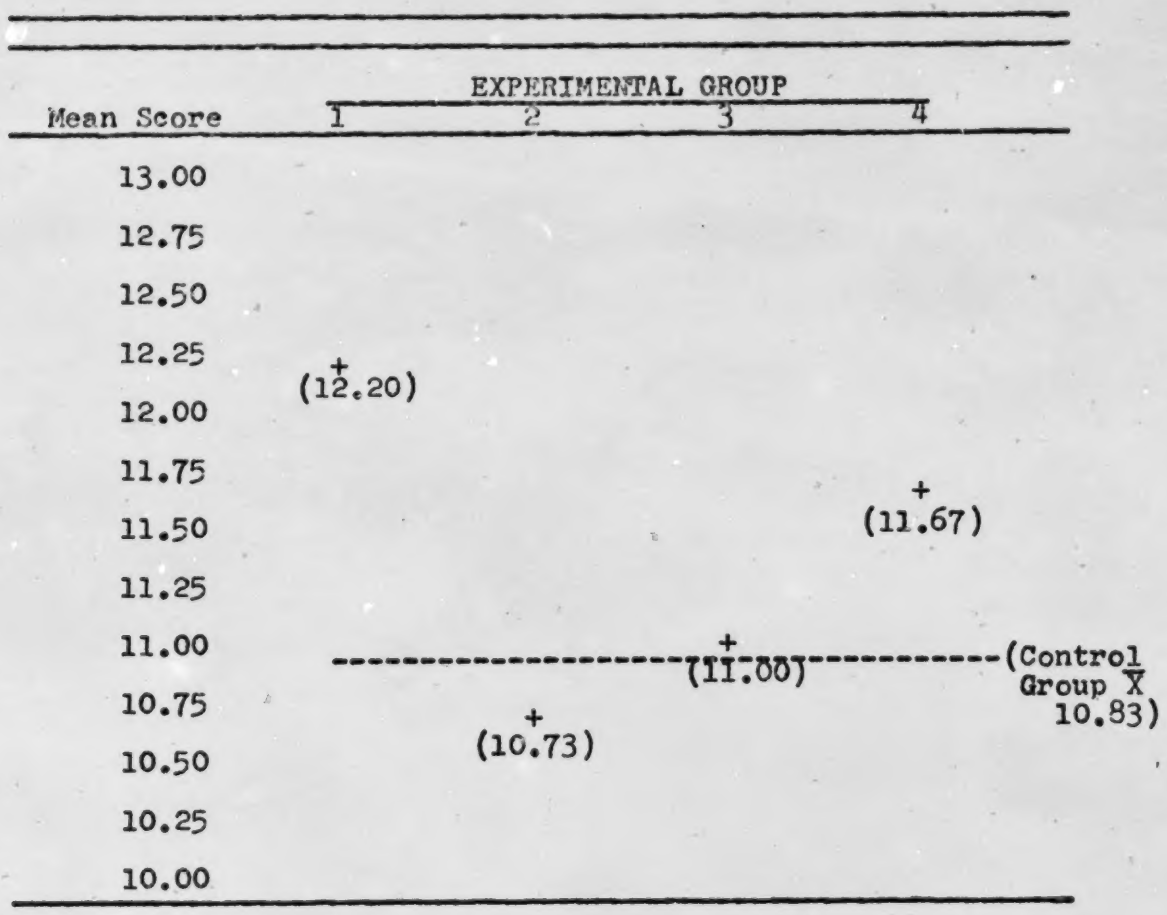
	1	2	3	4	5	6	7
1. GROUP (1=heterogeneous 2=homogeneous 3=control)	1.000	.750	.000	-.076	.023	-.071	-.169
	(.001)	(.001)	(.500)	(.239)	(.415)	(.252)	(.055)
2. INSTRUCTION (1=vocabulary 2=comprehension 3=control)		1.000	.000	-.093	.014	-.109	-.141
		(.001)	(.500)	(.191)	(.449)	(.152)	(.092)
3. SEX (1=male 2=female)			1.000	.090	.102	.088	-.228
			(.001)	(.197)	(.170)	(.205)	(.015)
4. VOCABULARY (raw score)				1.000	.724	.149	.185
				(.001)	(.001)	(.081)	(.041)
5. COMPREHENSION (raw score)					1.000	.157	.013
					(.001)	(.069)	(.451)
6. LOCUS OF CONTROL						1.000	-.112
						(.001)	(.147)
7. SATISFACTION SCALE							1.000
							(.001)

APPENDIX B

GRAPHS

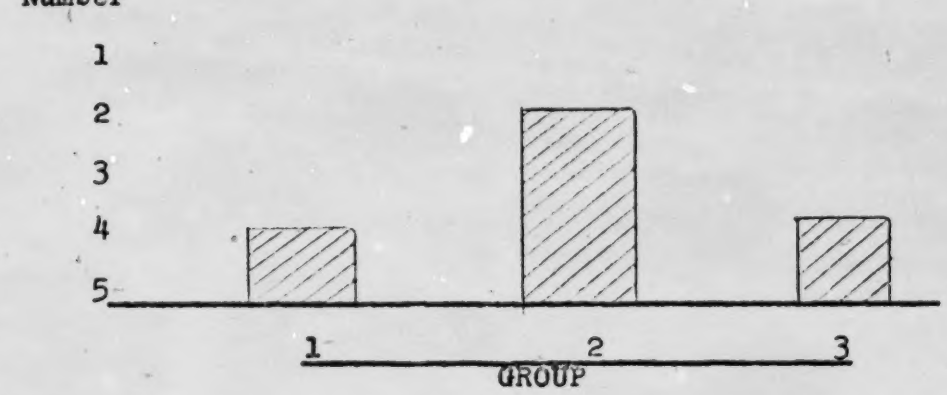
GRAPH I

LOCUS OF CONTROL MEANS



GRAPH II

SEVENTY-FIVE PERCENT OF STUDENTS
ANSWERING "YES" TO ___ OR MORE ITEMS



1 = Homogeneously Grouped
2 = Heterogeneously Grouped
3 = Control Group

* Pearson Correlation = -.17
** significance level = .05

APPENDIX C

MATERIALS LIST

MATERIALS ADAPTED FOR USE IN THE PROGRAM

1. Hoffman Reading Study Units
   Units 101-40 to 101-59

   Hoffman Electronics Corp.
   5623 Peck Road
   Arcadia, California 91006

2. Now Age Illustrated Reading Kit

   Pendulum Press, Inc.
   The Academic Building
   Saw Mill Road
   West Haven, Conn. 06516

3. Comics Reading Library

   King Features
   235 East 45th Street
   New York, New York 10017

4. Skillpacers

   Random House
   400 Hahn Road
   Westminster, Maryland 21157

5. Specific Skill Series
   Words to Meet
   Picto-Cabulary

   Barnell Loft, Ltd.
   958 Church Street
   Baldwin, New York 11501

APPENDIX D

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BIBLIOGRAPHY

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